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Laying open for public inspection of an application for Utility Model
Registration No. 52250/91.

The patent Office (JP)

Provisional Publication Utility Model Gazette No. 52250/91

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54. Title of the device Supplementary lighting device for a
automotive vehicle

Application for Utility Model 113342/91
Application September 29, 1989

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Specification

1. The title of the device
Supplementary lighting device of a automotive vehicle

2. Scope of the application for Utility Model Registration

(1) Lamp is installed in space within side view mirror mounted on a vehicle. The approach of an occupant to the vehicle is detected, then the lamp turns on to illuminate the side of the car body and the ground below.

3. Detailed description of the device
[Industrial application of this device]

This is supplementary lighting device to illuminate the body of a vehicle and the ground below along the side of the body.

[Conventional technology]

Conventionally when someone was getting into a vehicle at night which was parked at a dimly lit parking lot, it was difficult to find the key cylinder's location because of the darkness. It was also an issue to know about the ground condition where an occupant stepped on before getting into the vehicle.

To address this issue, Provisional Publication in Utility Model Gazette No. 43846/85 shows space formed within the upper part of the molding mounted on to the bottom of outer door and lamp fitted in the space. It refers to oblique (coordinated) lamp, the emission of which illuminates the ground immediately below the door through the opening at the bottom of the above mentioned space, thus secure the lighting for the ground.

[The challenge that the device tries to overcome]

The above mentioned conventional oblique (coordinated) lamp ensures lighting for the ground when the door is opened. However, it had a problem that it could not light the key cylinder area to indicate its location when an occupant is to unlock the door of a vehicle that is parked at a under lit parking lot in the evening.

Moreover, ground is lit only when the door is open. With door shut, it is dark at both ground and key cylinder area.

The purpose of this device is to provide supplementary lighting device that illuminates key cylinder area and area below door when an occupant comes close to a vehicle parked at a dark parking space.

[Means to resolve the issue]

To achieve the above stated purpose, this automotive supplementary lighting device has lamp in space that is formed inside the side view mirror mounted on a vehicle. Via

detection means including key-less entry, the approach of an occupant to the vehicle is detected to turn on the lamp in order to illuminate the side and below the vehicle.

(Effect)

The automotive supplementary lighting device which has the above mentioned construction detects the approach of an occupant to the vehicle to activate the lamp installed in space within side view mirror. The illumination on the side of the vehicle and the ground underneath facilitates the occupant to identify the key cylinder location on the vehicle parked at a dark parking space and secure the walking safety.

(Application)

The applications of the device is explained using the figures.

On Figures 1 and 2, Side View Mirrors 2 and 2 are mounted on Front Door of the Body 1. Lamp is installed inside of each Side View Mirror 2 and 2. Using detecting means including key-less entry, the approach of an occupant is detected to turn on the aforementioned lamps to irradiate Light 1. It illuminates the side of the body at the rear of the front wheel T and the ground below.

Conventional means such as key-less entry that is to detect the approach of an occupant to a vehicle can be used. Means such as detecting the change of electric field caused by the interruption through the occupant approach or those using electric wave can be also used.

To explain the Application 1 using Figures 3 and 4, Side View Mirror 2 is supported by mirror bracket consisting of supporting means 31 and 32. The Mirror 21 is located in Mirror Housing 23 and is angle adjustable.

Lamp is installed at the space at the bottom of Mirror 21 and Supporting Mechanism 22. Opening is made at the bottom of the Mirror Housing 23 and Lens 24 made of such materials as Acrylic resin is fitted from the inside of the Mirror Housing 23. The Valve 4 is located toward inside from the Lens 24 and is covered by the Cover 25.

To explain the Application 2 using Figures 5 and 6, the Supporting Means 32 for the Mirror Bracket 3 is boxed shaped with open end at the top. The Lens 34 is fitted into the opening at the bottom and the Bracket 41 to support the Valve 4 is stored inside the Supporting means 32. The Lens 34 and Harness 41 are bolted down (not illustrated) to the bottom of the Supporting means 32 through the Holes 33 and 33. The feeder harness to the Valve 4 is routed through the Harness Hole 35 placed on the wall of the Supporting Means 32.

The top opening of the Supporting Means 32 is covered by the Capping Plate 5 and the Pressure bar 6, which are pressure fixed by the Spring 61.

In both Applications 1 and 2, installation angle is determined in such a way that when the Valve 4 is activated and emitted, light is irradiated to illuminate the side of a vehicle at the rear of the Front Wheel T and the ground below as illustrated in Figures 1 and 2.

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By providing the aforementioned construction, the feet area of an occupant is securely lit when the lighting in the environment is insufficient and the visibility of key cylinder improves as lighting shoots at that area.

With the lamp installed inside the side view mirror, it is aesthetically beautiful. As the lens is installed pointing downward, it does not get easily contaminated. The installation of the lens can be done with ease and this can be applied to various types of car bodies.

(Effect of the device)

As the device has the construction as mentioned above, it can display the following effects.

With the side of the body and the ground below lit, when an occupant is to get into a car at a under lit parking space, he/she can see clearly where he/she is stepping along and the visibility of key cylinder improves.

It is aesthetically beautiful since lamp is installed inside the side view mirror. The lens does not get contaminated easily as it is installed facing down. The lens can be installed with ease and this can be applied to various types of car bodies.

4. Brief description of the Figures

- Figure 1 is a front view of a vehicle using the device.
- Figure 2 is a side of the same vehicle.
- Figure 3 is an expanded view of the same side view mirror.
- Figure 4 is a cross section cut at IV-IV line on Figure 3 which depicts the Application 1.
- Figure 5 is an expanded view of major components, depicting the Application 2.
- Figure 6 is a cross section of the same.

- 1. car body
- 2. Side view mirror
- 3 mirror bracket
- 4. Valve
- 21. Mirror
- 23. Mirror housing
- 24. 34. Lens

Utility Model Registration is filed by
Mazda Motor Corp.
Attorney: Shoichi Kuriki (?)

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Figure 1
第 1 図

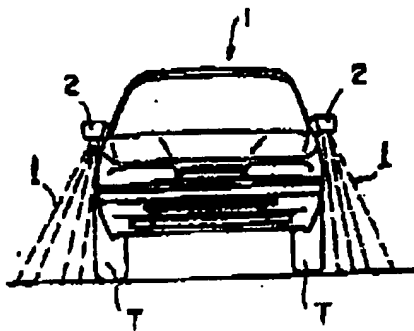
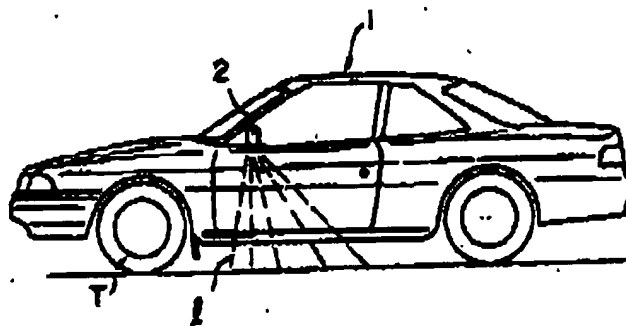


Figure 2
第 2 図

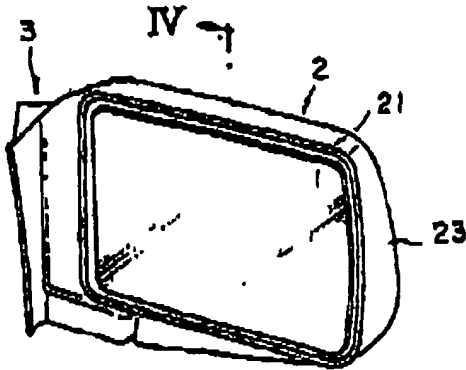


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FIGURE 3

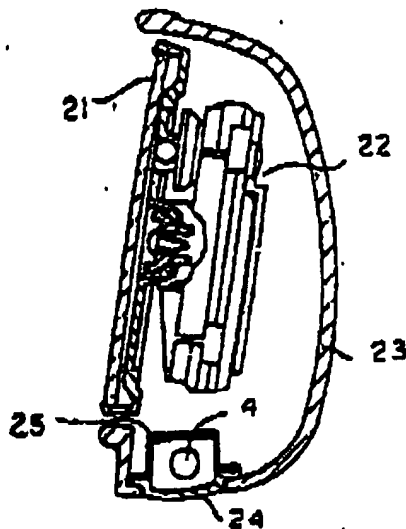
第 3 图



IV ↓

FIGURE 4

第 4 图



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FIGURE 5
 第 5 図

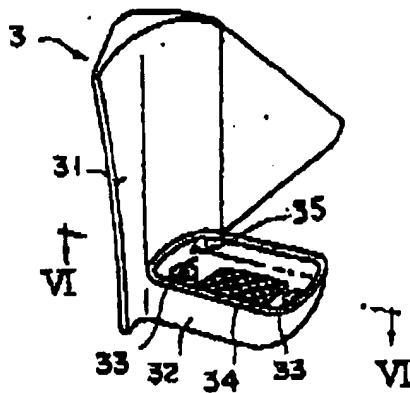
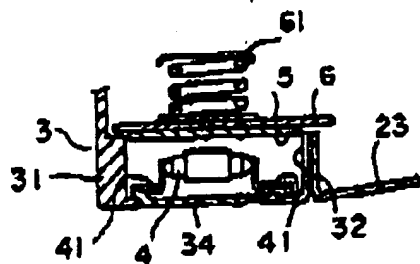


FIGURE 6
 第 6 図



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